

WHAT IS CLAIMED IS:

1. A method for securing first and second tissues with a suture anchor comprising the steps of:

forming a borehole in the first tissue;

5 threading a suture through the second tissue forming a loop in the suture with the tissue thereby secured in the loop, the loop defining two suture portions;

attaching the two suture portions to the anchor whereby at least one of the two suture portions is threaded through the anchor and initially movable with respect to the anchor; and

10 providing a force to a shaft of the anchor, the force causing clamping of the at least one of the two suture portions in the anchor and deformation of a deformable portion of the anchor to cause the deformable portion to engage a wall of the borehole thereby to secure the suture anchor in the first tissue and the loop holding the second tissue to the suture anchor.

2. The method of claim 1, wherein the step of providing a force to the shaft causes clamping of the two suture portions in the suture anchor.

3. The method of claim 1, wherein the step of clamping comprises providing a spacing between two clamping members in the anchor and frictionally engaging the at least one of the two suture portions between the clamping members when the force is applied to the suture anchor.

4. The method of claim 3, further comprising providing a convoluted path for the at least one of the two suture portions in the anchor to assist in securing of the suture portion in the suture anchor.

5. The method of claim 4, further comprising providing a convoluted path for the two suture portions in the suture anchor.

6. The method of claim 5, wherein the path is U-shaped.

7. The method of claim 1, wherein the deformable portion includes at least one set of proximally directed deformable fingers which upon deformation are directed radially into the wall of the borehole.

8. The method of claim 1, further comprising providing a frangible connection in the shaft for separating the anchor from a discardable portion of the shaft upon provision of a preset force to the shaft.

9. The method of claim 1, wherein the step of attaching comprises threading the two suture portions through an opening in the shaft and clamping the two suture portions between the opening in the shaft and a clamping member of the suture anchor.

10. The method of claim 9, wherein the step of clamping comprises moving the shaft proximally to cause deformation of the deformable portion, and clamping the two suture portions between a distal wall of the opening and the clamping member disposed proximally with respect to the deformable portion and coaxially about the shaft.  
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11. The method of claim 1, wherein the step of attaching comprises threading the at least one of the two suture portions through the anchor whereby the at least one of the two suture portions upon application of the force to the anchor is clamped between first and second clamping portions, and further wherein a second of

5       the two suture portions comprises an end of the suture and the step of attaching comprises fixedly securing the end of the suture to the anchor.

12.     The method of claim 11, wherein the step of attaching the second of the two suture portions is performed during manufacture of the suture anchor.

13.     The method of claim 11, wherein the step of threading the at least one of the two suture portions through the anchor comprises providing the at least one of the two suture portions through aligned openings in the shaft and a concentric member surrounding the shaft prior to proximal movement of the shaft and thereafter moving the shaft proximally so that said opening in said shaft is at least partly obstructed by said concentric member to clamp the at least one of the two suture portion between the concentric member and the shaft.

14.     The method of claim 13, wherein the opening in the shaft is covered by said concentric member upon proximal movement of the shaft thereby to clamp the at least one of the two suture portions between the shaft and concentric member in a convoluted path.

15.     The method anchor of claim 14, wherein the convoluted path is U-shaped.

16.     The method of claim 11, wherein the step of attaching the second of the two suture portions comprises providing a knot in the end of the suture, disposing the knot in a recess between the shaft and a retainer member surrounding the shaft to fix the second of the two suture portions securely to the anchor.

17. The method of claim 1, further comprising locking said deformable portion and shaft together to ensure that said at least one of the two suture portions is securely held to said anchor.

18. The method of claim 17, wherein the step of locking comprises providing at least one proximally disposed stop member directed proximally on a first concentric member surrounding the shaft for engagement with a shoulder on the shaft to prevent movement of the shaft and the concentric member after deformation  
5 of the deformable portion.

19. The method of claim 18, further comprising crimping said stop member radially inwardly securely against the shaft and in abutment with the shoulder.

20. The method of claim 1, further comprising providing a tension force on at least one of the two suture portions forming the loop to draw up the second tissue against the first tissue prior to clamping the at least one of the two suture portions in the suture anchor.

21. The method of claim 13, further comprising providing a spacing between the shaft and the concentric member sized so as to clamp the at least one of the two suture portions therebetween.

22. The method of claim 21, wherein the spacing is such that the at least one of the two suture portions is compressed between the shaft and concentric member.

23. A suture anchor comprising:

an engaging portion for engaging with a wall of a borehole in a first tissue member;

a shaft extending from the engaging portion;

5 a suture retaining portion in at least one of the engaging portion and the shaft for retaining two suture portions in the retaining portion with a loop formed between the two suture portions, the loop adapted to traverse a second tissue member to be attached to the first tissue member;

10 a concentric member disposed about a portion of the shaft adjacent the engaging portion; and wherein

application of a force to relatively move the shaft with respect to the concentric member causes clamping of at least one of the two suture portions in the suture retaining portion thereby to secure the suture forming the loop in the suture retaining portion and secure the second tissue to the suture anchor.

24. A method for securing first and second tissues with a suture anchor comprising the steps of:

forming a borehole in the first tissue;

5 threading a suture through the second tissue forming a loop in the suture with the tissue thereby secured in the loop, the loop defining two suture portions;

attaching the two suture portions to the anchor whereby at least one of the two suture portions is threaded through the anchor and initially movable with respect to the anchor;

10 inserting a tissue engagin portin of the suture anchor into a borehole in the first tissue;

providing a force to relatively move a shaft of the anchor with respect to a member concentric to the shaft, the force causing clamping of the at least one of the two suture portions in a suture retaining portion of the engaging portion or the shaft thereby to secure the loop holding the second tissue to the suture anchor; and

15 wherein the suture anchor is secured to the first tissue by the engaging portion of the suture anchor.